<u>Remarks</u>

Applicants believe that this amendment places the subject application in better condition for allowance and in so doing introduces no new issues. Therefore, entry of this Amendment, reconsideration of the application, and allowance of all claims pending herein is respectfully requested.

Claims 1-20 were previously presented in the subject application. Claims 8, 9, and 10 have been amended to depend from claim 1. No new matter has been added.

<u>Rejections under § 112:</u>

Claims 1, 3, 4, 7 and 11-14 stand rejected under § 112 as failing to comply with the written description requirement, on the ground that the "originally filed claims and specification fail to offer support for the limitation 'so that each computer PCi is configured for direct data exchange with <u>substantially every other computer</u> PCi." (Office Action p. 2) (emphasis in original).

In response, Applicants respectfully submit that Fig. 5, and ¶ 108 of the original specification support this claim feature. Fig. 5 shows an embodiment with five PCs, in which each PC exchanges data with every other PC. For example, PC1 exchanges data as follows: with PC2 in Step 1; with PC3 in Step 2; with PC4 in Step 3, and with PC 5 in Step 4. Paragraph 108 of the specification explains the data exchange among PC1, PC2, PC3, PC4, and PC5 of the embodiment of Fig. 5. "Data transfer is carried out following each step as shown in the drawing.

$$\text{Step 1: } PCi \rightarrow PCi+1$$
$$\text{Step 2: } PCi \rightarrow PCi+2$$
$$\text{Step 3: } PCi \rightarrow PCi+3$$
$$\text{Step 4: } PCi \rightarrow PCi+4."$$

(Specification ¶ 108). Therefore, the claims reciting data exchange with substantially every other computer PCi, are supported by Fig. 5 and ¶ 108 of the original specification.

Claims 1, 3, 4, 7 and 11-14 also stand rejected under § 112 as rendered indefinite. According to the Office Action, the claims are "rendered indefinite by the phrase 'so that each

computer PCi is configured for direct data exchange with <u>substantially every other computer</u> <u>PCi</u>.' The specification fails to hint or suggest an embodiment of the claimed invention in which a computer PCi may directly exchange data with <u>substantially</u> every other computer PCi." (Office Action p. 2) (emphasis in original). As discussed above, Applicants respectfully submit that this claim recitation is fully supported by the original specification. Therefore, this rejection should be withdrawn.

<u>Rejections under § 102</u>:

Claims 1-20 stand rejected under § 102 as anticipated by Kaufman et al., U.S. Patent No. 7,590,984. To the extent deemed relevant in light of the amended claims, Applicants respectfully traverse this rejection.

Each of the independent claims recites "a plurality n of computers PCi . . . so that each computer PCi is configured for direct data exchange with substantially every other computer PCi." In contrast, Kaufman et al. do not disclose computers configured for direct data exchange with substantially every other computer. Kaufman et al. disclose communications between VPPs (variable problem partitions), but not between individual computing machines. Communications between VPPS are not the same thing as data exchange among computing machines, as discussed below.

Passages cited in the Office Action appear to disclose communications between VPPs.

> Distribution of the communication servers is straightforward with system 10. As discussed above, each VPP running on a compute node might "know" the address of other VPPs with which it shares information. It is straightforward, therefore, to also encode the communication pathway or address of the server to which that VPP is assigned.
>
> * * *
>
> The actual communication mechanism employed for a particular VPP "paring" is, in fact, "pluggable". Although the default communication mechanism is a communication server, any other communication infrastructure, such as a peer to peer system, could be used. Since the pair-wise VPP communication information contains the mechanism itself in addition to the address and other information, every VPP paring could potentially have a separate communication mechanism.

(Kaufman et al. col. 15, lines 1-5, 14-20). Communications between VPPs are not equivalent to

communications among computing machines. For example, there may be several VPPs on a single computing machine. Communications among these VPPs on the single computing machine do not signify communications among computing machines.

Kaufman et al. make clear that there is one VPP per compute agent. "Each VPP represents the amount of the problem that is given to a compute agent." (Kaufman et al. col. 8 lines 26-27). However, Kaufman et al. do not define a "compute agent" as a computing machine. Instead, Kaufman et al. define "compute agent" as a node or virtual machine, as follows. "Compute Agent (CA): A computer node on a grid or a virtual machine running on a node, i.e., the computation resource on the grid." (Kaufman et al. col. 10 lines 28-29).

Since there may be more than one compute agent on a machine, there may be more than one VPP on a machine. Communication between VPPs one machine would not involve communication between computing machines.

Kaufman et al. discuss some prior art, in which machines exchange data with machines handling adjacent regions of space (e.g. data).

> A very simple example can be used to understand the complexity introduced by requiring communication between adjacent cells in any FEM class problem. One such example is a "Game of Life" based on a modified Eden Model for bacterial growth...
>
> <p style="text-align:center">* * *</p>
>
> In this hypothetical example, the problem being studied is so large it cannot be solved on a single computer. Conceptually, it is simple to divide space (the Cartesian region) into partitions or collections of original problem cells (OPCs). . . . The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle.

(Kaufman et al. col. 4 lines 13-17, 42-45, 57-59). This passage from the Kaufman et al. disclosure appears to address the "Game of Life" example, in which communication among machines is limited to machines "handling adjacent regions of space." The "Game of Life" example appears to be prior art, rather than part of the Kaufman et al. invention. In contrast, the Kaufman et al. invention does not address communications between computing machines, let alone a plurality of computers configured for data exchange between substantially every other computer in the plurality. Therefore, Applicants respectfully submit that Kaufman et al. do not
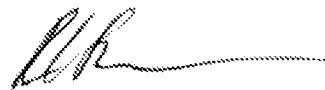
anticipate the claims.

CONCLUSION

Applicants submit that the dependent claims are allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their additional limitations. Applicants therefore further submit that all of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot.

This application is now believed to be in condition for allowance, and such action at an early date is respectfully requested. However, if any matters remain unresolved, the Examiner is encouraged to contact the undersigned by telephone.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 50-0734** referencing Docket No. 1215.004. However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

Richard Sampson
Attorney for Applicants
Registration No. 37,231

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SAMPSON & ASSOCIATES, P.C.
50 Congress Street, Suite 519
Boston, MA 02109
Telephone: (617) 557-2900
Facsimile: (617) 557-0077